

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- Claim 1 (currently amended): A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; an inorganic compound; and a hydratable polymer; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein.
- Claim 2 (original): The method of claim 1 wherein the acrylamide copolymer derivative comprises a copolymer or copolymer salt of N,N-dimethylacrylamide and 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.
- Claim 3 (currently amended): ~~The method of claim 1~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; and a hydratable polymer; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of lignin, lignite and their salts and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-

methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 4 (currently amended): ~~The method of claim 1~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; and a hydratable polymer; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of derivatized cellulose, polyvinyl alcohol, polyethylene oxide, polypropylene oxide, and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 5 (original): The method of claim 1 wherein the acrylamide copolymer derivative comprises copolymers or copolymer salts comprising 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 6 (original): The method of claim 5 wherein the copolymers or copolymer salts comprise copolymers of hydrolyzed acrylamide and 2-acrylamido-2-methylpropane sulfonic acid derivatives.

Claim 7 (original): The method of claim 1 wherein the hydratable polymer comprises carboxymethylcellulose, hydroxyethylcellulose, carboxymethylhydroxyethylcellulose, vinyl sulfonated polymers, hydratable graft polymers, and mixtures thereof.

Claim 8 (original): The method of claim 1 wherein the fluid loss control additive further comprises a dispersant.

Claim 9 (original): The method of claim 8 wherein the dispersant comprises a water-soluble polymer prepared by the caustic-catalyzed condensation of formaldehyde with acetone wherein the polymer contains sodium sulfate groups.

Claim 10 (currently amended): ~~The method of claim 1~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative, a hydratable polymer, and a zeolite; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein.

Claim 11 (currently amended): The method of claim 10 wherein the fluid loss control additive further comprises a dispersant ~~and a zeolite~~.

Claim 12 (original): The method of claim 11 wherein the fluid loss control additive further comprises iron chloride, an organic acid, a deaggregation agent, silica, or mixtures thereof.

Claim 13 (original): The method of claim 1 wherein the cement comprises Portland cements, pozzolanic cements, gypsum cements, high alumina content cements, silica cements, or high alkalinity cements.

Claim 14 (original): The method of claim 1 wherein the water is present in the cement composition in an amount sufficient to form a pumpable slurry.

Claim 15 (original): The method of claim 1 wherein the water is present in the cement composition in an amount in the range of from about 15% to about 200% by weight of cement.

Claim 16 (original): The method of claim 1 wherein the cement composition has a density in the range of from about 5 pounds per gallon to about 30 pounds per gallon.

Claim 17 (original): The method of claim 1 wherein the cement composition further comprises a weighting agent, a defoamer, a surfactant, mica, fiber, bentonite, microspheres, fumed silica, a salt, vitrified shale, fly ash, a dispersant, a retardant or an accelerant.

Claim 18 (original): The method of claim 1 wherein the fluid loss control additive is present in the cement composition in an amount sufficient to provide a desired degree of fluid loss control.

Claim 19 (original): The method of claim 1 wherein the fluid loss control additive is present in the cement composition in an amount in the range of from about 0.01% by weight of cement to about 5.0% by weight of cement.

Claim 20 (original): The method of claim 12 wherein the iron chloride is present in the fluid loss control additive in an amount sufficient to allow the cement to be suitable for the subterranean temperature of the well being cemented.

Claim 21 (original): The method of claim 12 wherein the iron chloride is present in the fluid loss control additive in an amount in the range of from about 5% to about 25% by weight of the fluid loss control additive.

Claim 22 (original): The method of claim 12 wherein the iron chloride is anhydrous ferric chloride.

Claim 23 (original): The method of claim 8 wherein the dispersant is present in the fluid loss control additive in an amount sufficient to prevent gelation of the cement composition.

Claim 24 (original): The method of claim 8 wherein the dispersant is present in the fluid loss control additive in an amount in the range of from about 25% to about 50% by weight of the fluid loss control additive.

Claim 25 (original): The method of claim 1 wherein the hydratable polymer is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight of the fluid loss control additive.

Claim 26 (original): The method of claim 12 wherein the organic acid is present in the fluid loss control additive in an amount sufficient to provide a desired degree of viscosity control.

Claim 27 (original): The method of claim 12 wherein the organic acid is present in the fluid loss control additive in an amount in the range of from about 0.01% to about 5% by weight of the fluid loss control additive.

Claim 28 (original): The method of claim 12 wherein the silica is high surface area amorphous silica.

Claim 29 (original): The method of claim 12 wherein the de-aggregation agent is present in the fluid loss control additive in an amount sufficient to enable the fluid loss control additive to flow freely as a powder.

Claim 30 (original): The method of claim 29 wherein the de-aggregation agent is present in the fluid loss control additive in an amount in the range of from about 1% to about 15% by weight of the fluid loss control additive.

Claim 31 (original): The method of claim 28 wherein the high surface area amorphous silica is present in the fluid loss control additive in an amount sufficient to provide a desired after-set compressive strength.

Claim 32 (original): The method of claim 28 wherein the high surface area amorphous silica is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight of the fluid loss control additive.

Claim 33 (original): The method of claim 1 wherein the acrylamide copolymer derivative is present in the fluid loss control additive in an amount in the range of from about 1% to about 99% by weight.

Claim 34 (original): The method of claim 2 wherein the copolymer or copolymer salt has a N,N-dimethylacrylamide to 2-acrylamido-2-methylpropane sulfonic acid (or acid salts thereof) mole ratio of from about 1:4 to about 4:1.

Claim 35 (original): The method of claim 2 wherein the copolymer or copolymer salt has a weight average molecular weight of between about 75,000 and about 300,000 daltons.

Claim 36 (original): The method of claim 10 wherein the zeolite further comprises chabazite and amorphous silica.

Claim 37 (original): The method of claim 10 wherein the zeolite is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight of the fluid loss control additive.

Claim 38 (currently amended): The method of claim 11 wherein the fluid loss control additive is present in the cement composition in an amount in the range of from about 0.25% to about 1.5% by weight of the cement; wherein the hydratable polymer is present in the fluid loss control additive in an amount in the range of from about 1.5% to about 4.5% by

weight; wherein the acrylamide copolymer derivative is present in the fluid loss control additive in an amount in the range of from about 40% by weight to about 50% by weight; wherein the dispersing agent is present in the fluid loss control additive in an amount in the range of from about 40% to about 60% by weight; wherein the zeolite is present in the fluid loss control additive in an amount in the range of from about 1% by weight to about 10% by weight.

Claim 39 (currently amended): A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; an inorganic compound; and a dispersant; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein.

Claim 40 (original): The method of claim 39 wherein the acrylamide copolymer derivative comprises a copolymer or copolymer salt of N,N-dimethylacrylamide and 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 41 (currently amended): ~~The method of claim 39~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; and a dispersant; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of lignin, lignite and their salts and a grafted pendant

group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 42 (currently amended): ~~The method of claim 39~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative; and a dispersant; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of derivatized cellulose, polyvinyl alcohol, polyethylene oxide, polypropylene oxide, and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 43 (original): The method of claim 39 wherein the acrylamide copolymer derivative comprises copolymers or copolymer salts comprising 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 44 (original): The method of claim 43 wherein the copolymers or copolymer salts comprise copolymers of hydrolyzed acrylamide and 2-acrylamido-2-methylpropane sulfonic acid derivatives.

Claim 45 (currently amended): ~~The method of claim 39 wherein the fluid loss control additive further comprises a hydratable polymer and zeolite~~ A method of cementing in a subterranean formation comprising the steps of: providing a cement composition comprising a hydraulic cement, water, and a fluid loss control additive, the fluid loss control additive comprising: an acrylamide copolymer derivative, a hydratable polymer, a zeolite, and a dispersant; placing the cement composition into the subterranean formation; and permitting the cement composition to set therein.

Claim 46 (currently amended): A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; an inorganic compound; and a hydratable polymer.

Claim 47 (original): The method of claim 46 wherein the acrylamide copolymer derivative comprises a copolymer or copolymer salt of N,N-dimethylacrylamide and 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 48 (currently amended): ~~The method of claim 46~~ A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; and a hydratable polymer; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of lignin, lignite and their salts and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-

dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 49 (currently amended): ~~The method of claim 46~~ A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; and a hydratable polymer; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of derivatized cellulose, polyvinyl alcohol, polyethylene oxide, polypropylene oxide, and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 50 (original): The method of claim 46 wherein the acrylamide copolymer derivative comprises copolymers or copolymer salts comprising 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 51 (original): The method of claim 50 wherein the copolymers or copolymer salts comprise copolymers of hydrolyzed acrylamide and 2-acrylamido-2-methylpropane sulfonic acid derivatives.

Claim 52 (original): The method of claim 46 wherein the hydratable polymer comprises carboxymethylcellulose, hydroxyethylcellulose, carboxymethylhydroxyethylcellulose, vinyl sulfonated polymers, hydratable graft polymers, and mixtures thereof.

Claim 53 (original): The method of claim 46 wherein the fluid loss control additive further comprises a dispersant.

Claim 54 (original): The method of claim 53 wherein the dispersant comprises a water-soluble polymer prepared by the caustic-catalyzed condensation of formaldehyde with acetone wherein the polymer contains sodium sulfate groups.

Claim 55 (currently amended): A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; a zeolite; and a hydratable polymer.
~~The method of claim 46 wherein the fluid loss control additive further comprises a zeolite.~~

Claim 56 (currently amended): The method of claim ~~46~~ 55 wherein the fluid loss control additive further comprises a dispersant ~~and a zeolite~~.

Claim 57 (original): The method of claim 56 wherein the fluid loss control additive further comprises iron chloride, an organic acid, a deaggregation agent, silica, or mixtures thereof.

Claim 58 (original): The method of claim 46 wherein the cement composition comprises Portland cements, pozzolanic cements, gypsum cements, high alumina content cements, silica cements, or high alkalinity cements.

Claim 59 (original): The method of claim 46 wherein the cement composition comprises water present in an amount sufficient to form a pumpable slurry.

Claim 60 (original): The method of claim 59 wherein the water is present in the cement composition in an amount in the range of from about 15% by weight of cement to about 200% by weight of cement.

Claim 61 (original): The method of claim 46 wherein the cement composition has a density in the range of from about 5 pounds per gallon to about 30 pounds per gallon.

Claim 62 (original): The method of claim 46 wherein the cement composition further comprises a weighting agent, a defoamer, a surfactant, mica, fiber, bentonite, microspheres, fumed silica, a salt, vitrified shale, fly ash, a dispersant, a retardant or an accelerant.

Claim 63 (original): The method of claim 46 wherein the fluid loss control additive is present in the cement composition in an amount sufficient to provide a desired degree of fluid loss control.

Claim 64 (original): The method of claim 46 wherein the fluid loss control additive is present in the cement composition in an amount in the range of from about 0.01% by weight of cement to about 5.0% by weight of cement.

Claim 65 (original): The method of claim 57 wherein the iron chloride is present in the fluid loss control additive in an amount sufficient to allow the cement to be suitable for the subterranean temperature of the well being cemented.

Claim 66 (original): The method of claim 57 wherein the iron chloride is present in the fluid loss control additive in an amount in the range of from about 5% to about 25% by weight of the fluid loss control additive.

Claim 67 (original): The method of claim 57 wherein the iron chloride is anhydrous ferric chloride.

Claim 68 (original): The method of claim 53 wherein the dispersant is present in the fluid loss control additive in an amount sufficient to prevent gelation of the cement composition.

Claim 69 (original): The method of claim 53 wherein the dispersant is present in the fluid loss control additive in an amount in the range of from about 25% to about 50% by weight of the fluid loss control additive.

Claim 70 (original): The method of claim 46 wherein the hydratable polymer is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight of the fluid loss control additive.

Claim 71 (original): The method of claim 57 wherein the organic acid is present in the fluid loss control additive in an amount sufficient to provide a desired degree of viscosity control.

Claim 72 (original): The method of claim 57 wherein the organic acid is present in the fluid loss control additive in an amount in the range of from about 0.01% to about 5% by weight of the fluid loss control additive.

Claim 73 (original): The method of claim 57 wherein the silica is high surface area amorphous silica.

Claim 74 (original): The method of claim 57 wherein the de-aggregation agent is present in the fluid loss control additive in an amount sufficient to enable the fluid loss control additive to flow freely as a powder.

Claim 75 (original): The method of claim 57 wherein the de-aggregation agent is present in the fluid loss control additive in an amount in the range of from about 1% to about 15% by weight of the fluid loss control additive.

Claim 76 (original): The method of claim 73 wherein the high surface area amorphous silica is present in the fluid loss control additive in an amount sufficient to provide a desired after-set compressive strength.

Claim 77 (original): The method of claim 73 wherein the high surface area amorphous silica is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight of the fluid loss control additive.

Claim 78 (original): The method of claim 46 wherein the acrylamide copolymer derivative is present in the fluid loss control additive in an amount in the range of from about 1% to about 99% by weight.

Claim 79 (original): The method of claim 47 wherein the copolymer or copolymer salt has a N,N-dimethylacrylamide to 2-acrylamido-2-methylpropane sulfonic acid (or acid salts thereof) mole ratio of from about 1:4 to about 4:1.

Claim 80 (original): The method of claim 47 wherein the copolymer or copolymer salt has a weight average molecular weight of between about 75,000 and about 300,000 daltons.

Claim 81 (original): The method of claim 55 wherein the zeolite further comprises chabazite and amorphous silica.

Claim 82 (original): The method of claim 55 wherein the zeolite is present in the fluid loss control additive in an amount in the range of from about 0.1% to about 15% by weight.

Claim 83 (currently amended): The method of claim ~~46~~ 56 wherein the fluid loss control additive is present in the cement composition in an amount in the range of from about 0.25% to about 1.5% by weight of the cement; wherein the hydratable polymer is present in the fluid loss control additive in an amount in the range of from about 1.5% to about 4.5% by weight; wherein the acrylamide copolymer derivative is present in the fluid loss control additive in an amount in the range of from about 40% by weight to about 50% by weight; wherein the dispersing agent is present in the fluid loss control additive in an amount in the range of from about in the range of from about 40% to about 60% by

weight; and wherein the zeolite is present in the fluid loss control additive in an amount in the range of from about 1% by weight to about 10% by weight.

Claim 84 (currently amended): A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; an inorganic compound; and a dispersant.

Claim 85 (original): The method of claim 84 wherein the acrylamide copolymer derivative comprises a copolymer or copolymer salt of N,N-dimethylacrylamide and 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 86 (currently amended): ~~The method of claim 84~~ A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; and a dispersant; wherein the acrylamide copolymer derivative comprises a graft polymer comprising a backbone comprising at least one member selected from the group consisting of lignin, lignite and their salts and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 87 (currently amended): ~~The method of claim 84~~ A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; and a dispersant; wherein the acrylamide copolymer derivative comprises a graft polymer

comprising a backbone comprising at least one member selected from the group consisting of derivatized cellulose, polyvinyl alcohol, polyethylene oxide, polypropylene oxide, and a grafted pendant group comprising at least one member selected from the group consisting of 2-acrylamido-2-methylpropanesulfonic acid, acrylonitrile, N,N-dimethylacrylamide, acrylic acid, N,N-dialkylaminoethylmethacrylate wherein the alkyl radical comprises at least one member selected from the group consisting of methyl, ethyl and propyl radicals.

Claim 88 (original): The method of claim 84 wherein the acrylamide copolymer derivative comprises copolymers or copolymer salts comprising 2-acrylamido-2-methylpropane sulfonic acid or acid salts thereof.

Claim 89 (original): The method of claim 88 wherein the copolymers or copolymer salts comprise copolymers of hydrolyzed acrylamide and 2-acrylamido-2-methylpropane sulfonic acid derivatives.

Claim 90 (currently amended): ~~The method of claim 84 wherein the fluid loss control additive further comprises a hydratable polymer and zeolite~~ A method of reducing the fluid loss from a cement composition, comprising the step of adding to the cement composition a fluid loss control additive comprising: an acrylamide copolymer derivative; a hydratable polymer; a zeolite; and a dispersant.

Claims 91-174 (withdrawn).

Claim 175 (new): A method of reducing the fluid loss from a cement composition, comprising adding to the cement composition a fluid loss control additive comprising an organic compound and an inorganic compound.

Claim 176 (new): The method of claim 175, wherein the inorganic compound comprises iron chloride.

Claim 177 (new): The method of claim 175, wherein the inorganic compound comprises anhydrous ferric chloride.

Claim 178 (new): The method of claim 175, wherein the fluid loss control additive further comprises a zeolite.

Claim 179 (new): The method of claim 175, wherein the organic compound comprises an acrylamide copolymer derivative.

Claim 180 (new): The method of claim 175, wherein the organic compound comprises an acrylamide copolymer derivative and a dispersant.

Claim 181 (new): The method of claim 175, wherein the organic compound comprises an acrylamide copolymer derivative and a hydratable polymer.

Claim 182 (new): The method of claim 175, wherein the organic compound comprises an acrylamide copolymer derivative, a hydratable polymer, and a dispersant.

Claim 183 (new): The method of claim 175, wherein the fluid loss control additive further comprises a zeolite; and wherein the organic compound comprises an acrylamide copolymer derivative, a hydratable polymer, and a dispersant.

Claim 184 (new): The method of claim 175, wherein the organic compound comprises an acrylamide copolymer derivative; and wherein the inorganic compound comprises iron chloride.

Claim 185 (new): The method of claim 175, wherein the inorganic compound comprises iron chloride; and wherein the organic compound comprises an acrylamide copolymer derivative, a hydratable polymer, and a dispersant.